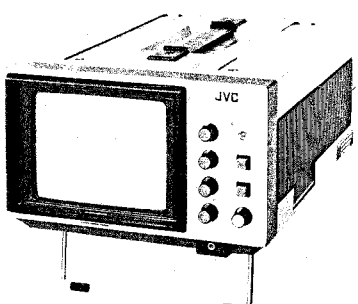
JVC Service Manual

COLOUR VIDEO MONITOR

MODEL TM-41EG/EK

VICTOR COMPANY OF JAPAN, LIMITED.

JVC Service Manual



MODEL **TM-41EG/EK**

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SECTION 1
GENERAL DESCRIPTION

1.1 INTRODUCTION

This manual provides service information for the JVC TM-41EG/EK Color Video Monitor. The manual describes the instruction and adjustment of electrical operation. Service procedures given herein cover only field maintenance services.
Adjustments which require high-level instruments, jigs and techniques are excluded, since they should be performed at the factory.
Due to design modifications, the service procedures and data given in this manual are subject to posssible change without prior notice.

WARNING:
TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

POWER SYSTEM

Connection to the mains supply
The operating voltage of this set is preset to 220 V ∿ (EK-version: 240 V∿) at the factory.
Before connectiong to mains, check that the voltage selector on the rear panel is set to the same voltages as your local mains supply.

Adapting to local power line
This set operates on either 110, 127, 220 or 240 V∿. The voltage selector can be reset as follows. Turn the voltage selector using a screwdriver until the proper voltage appears at the cutout.

MAINS POWER SWITCH

The mains power switch is located on the rear connector panel. Setting this switch to OFF removes all applied power from the unit.

IMPORTANT (In the United Kingdom)
Mains Supply (AC 240 V∿, 50 Hz only)

IMPORTANT

Do not make any connection to the Larger Terminal coded E or Green. The wires in the mains lead are coloured in accordance with following code:

If these colours do not correspond with the terminal identifications of your plug, connect as follows:
Blue wire to terminal coded N (Neutral) or coloured Black. Brown wire to terminal coded L (Live) or coloured Red.

1.2 FEATURES

- PAL/SECAM switchable colour system with a three-position switch for PAL, AUTO and SECAM.
- Compact, lightweight and handy to use.
- A 6-inch (13-cm viewing area) in-line black stripe picture tube capable of accurate, well-defined colour reproduction.
- Flexible AC/DC power supply — household AC or built-in exclusive rechargeable battery pack — enabling both indoor or outdoor use.
- Built-in speaker enabling simultaneous audio and video monitoring.
- Dual circuits provided for audio and video signals.
- An LED indicator to warn of low battery power.
- Recharging of the exclusive battery pack PBP-1 (optional) is possible with the AA-P41EG/EK/S AC Power Adapter (optional).

1.3 SPECIFICATIONS

Type	: Colour video monitor
Colour system	: PAL/SECAM switchable
Picture tube	: 6" (13-cm viewing area)
Power requirement	: 110/127/220/240 V AC, 50 Hz 12 V DC (exclusive battery pack PBP-1)
Power consumption	: 26 W (AC) 14 W (DC) (about 1.5 hours with a fully charged battery pack)
Video input	: 1 Vp-p (2 circuits) Input impedance — OPEN/75 ohms selectable
Video output	: 1 Vp-p, 75 ohms
Audio input	: –6 dBs (more than 50 k ohms)
Audio output	: –6 dBs
Built-in speaker	: 77 mm dia. (16 ohms)
Speaker output	: 500 mW
Operating temperature	: –10° C to +40° C
Storage temperature	: –10° C to 70° C
Dimensions	: 22.0(W) x 13.5(H) x 34.5(D) cm
Weight	: 4.1 kg
Accessories	: Hood, Power cord, Earphone Audio cable, Video cable

Design and specifications subject to change without notice.

1.4 PRECAUTIONS

- Prevent inflammables, water and metallic objects from entering the unit.
- Do not remodel or disassemble the unit. As the unit incorporates circuitry generating high voltage, physical danger and malfunctioning of the unit itself may result.
- Remove the AC power cord from the AC outlet when you are not using the unit for a long period.
- Do not damage the power cord. This could result in electric shock.

1.5 HANDLING

- Do not apply shocks or vibrations. Malfunctioning of the unit is likely to result.
- Do not place the unit near appliances generating strong electric or magnetic fields.
  Noisy or unstable pictures are likely to result.
- Do not use it in extremely hot places. Exposed to the direct sunlight for a long period of time or placed near a heater, the cabinet could become deformed, or the performance of the internal components may deteriorate. Special attention is required in summer. Inside a closed car the temperature can climb to as high as 80° C in the summer sun.
- Keep the monitor clean by wiping the cabinet and the CRT screen with a piece of soft cloth. Do not apply thinner or benzine. These chemicals can damage the surface finish and cause printed letters to be erased. Clean excessive soiling with a diluted neutral cleanser, then wipe away the cleanser with a dry cloth.
- Do not block the ventilation slots.

For outdoor usage

Apply a screen hood (provided) outdoors to eliminate reflections

The monitor can be inclined by erecting the stands on the bottom.

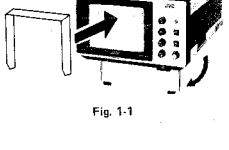


Fig. 1-1

1.6 CONTROLS AND CONNECTORS

1. **BRIGHTness control knob**
   Turn counterclockwise to darken the picture and clockwise to illumine it.
2. **CONTRAST control knob**
   Turn counterclockwise to soften contrast and clockwise to sharpen.
3. **COLOUR control knob**
   Turn clockwise to deepen the colour tone and vice versa.
4. **TINT control knob**
   Turn counterclockwise to emphasize reds and clockwise to emphasize greens. Normally set this knob to its center click-stop position.
5. **EARPHONE jack.**
   Plug in the provided earphone; audio monitoring is possible.
6. **BATT ALARM indicator**
   This lamp lights green while the unit is being operated on AC power. If this lamp lights red during battery operation, it indicates that the battery pack installed in the unit is nearing the end of its power. Immediately recharge the battery pack or replace it with a fresh one.

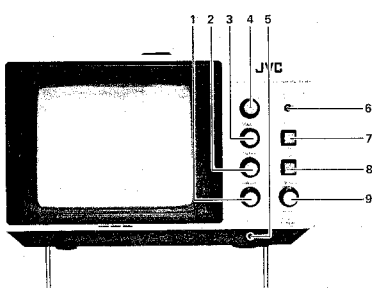


Fig. 1-2 (a)

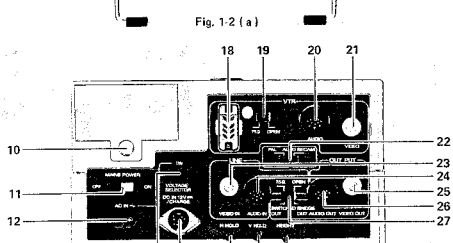


Fig. 1-2 (b)

7. **INPUT SELECT "VTR" switch**
   Push this switch to monitor audio and video signals from a unit connected to the VTR input terminals of the rear panel.
8. **INPUT SELECT "LINE" switch**
   Push this switch to monitor audio and video signals from a unit connected to the LINE input connectors (23) and (24) on the rear panel.
9. **OFF/VOLUME control knob**
   Turn this switch clockwise till it clicks for powering the TM-41EG/EK. By turning the knob further you can adjust the volume of the audio. Turn the knob fully counterclockwise to remove power from the unit. Make it a rule to put this switch in the OFF position after operating the unit and before recharging the installed battery pack.
10. **Battery compartment**
    Install the exclusive PBP-1 battery pack (optional) here.
11. **MAINS POWER switch**
    Switching ON applies mains power to the set. To switch off the set completely, set the power switch to OFF.
12. **AC IN ~ socket**
    Using the provided AC power cord, connect the AC IN terminal of the monitor to an AC outlet. When this terminal is being used, the installed battery cannot be employed. Make it a rule to unplug the power cord from this terminal when employing the exclusive battery pack.
13. **VOLTAGE SELECTOR**
    To reset the operating voltage, see "POWER SYSTEM" page 1-1.

14. **DC IN 12 V/CHARGE socket**
Recharging the installed battery pack is possible by connecting the DC output plug of the AA-P41EG/EK/S AC Power Adapter to this terminal.
15. **H. HOLD control**
Turn counterclockwise when the picture is slanting to the right and clockwise when slanting to the left.
16. **V. HOLD control**
Turn in either direction to stop vertical rolling of the picture.
17. **HEIGHT control**
Turn in either direction to adjust the picture if it's too narrow or elongated, using a screwdriver.
18. **VTR (8-pin) connector**
Connect the monitor to the video/audio monitor terminal of a VTR or other video sources.
19. **VTR 75 Ω termination switch**
Set this switch to 75 Ω to terminate the input signals of the VTR connected to the 8-pin connector (18) or set it to OPEN to make these signals available at the VTR AUDIO and VIDEO input/output connectors (20) and (21).
20. **VTR AUDIO input/output DIN socket**
21. **VTR VIDEO input/output connector**
Connect the audio and video outputs from a video tape recorder or other video sources to these two connectors. Or use these connectors to produce signals bridged from the VTR connected to the 8-pin connector (18).
22. **PAL/AUTO/SECAM colour system select switch**
PAL: Set to this position when the input signal conforms to PAL.
AUTO: The circuit is automatically switched either for PAL or SECAM depending on the input signal. This position is sufficient for most purposes.
SECAM: Set to this position when the input signal conforms to SECAM.
23. **VIDEO LINE IN**
24. **AUDIO LINE IN DIN connector**
Connect the audio and video outputs from a video tape recorder or other video sources to be monitored to these two connectors.
25. **OUTPUT VIDEO connector**
26. **OUTPUT AUDIO DIN socket**
Use these connectors to produce audio and video signals being monitored with the front panel input select switches or bridged from the LINE connectors (23) and (24).
27. **75 Ω termination/OUTPUT select switch**
Set this switch to 75 Ω to terminate the input signals connected to the LINE VIDEO IN and AUDIO IN connectors (23) and (24). Or set this switch to OPEN BRIDGE OUT when you wish to make avilable at the OUTPUT VIDEO and AUDIO connectors (25) and (26) signals connected to the LINE connectors (23) and (24).

To monitor signals applied to the 8-pin VTR connector (18) or the audio and video input/output connectors (20) and (21), push the front panel INPUT SELECT "VTR" switch.

To monitor signals applied to the video and audio LINE connectors (23) and (24), push the front panel INPUT SELECT "LINE" switch.

1.7 POWER SUPPLY

Using an AC outlet

Plug the provided power cord into an AC outlet.

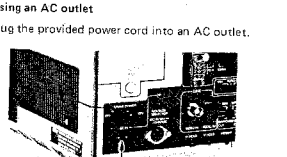


Fig. 1-3

The monitor cannot be powered from the battery pack if the power cord is plugged into the monitor. Make sure the power cord is disconnected from the monitor before the battery pack is used.

Installing the exclusive PBP-1 battery pack:

1. Loosen the screw of the battery compartment cover on the rear panel of the unit and remove the cover.

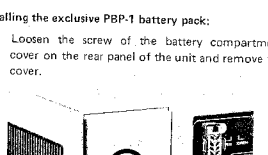


Fig. 1-4

2. Insert the battery pack with its cord outward and the blue ribbon on top of the battery pack.

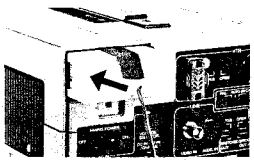


Fig. 1-5

3. Plug the battery cord into the socket near the opening and replace the cover.

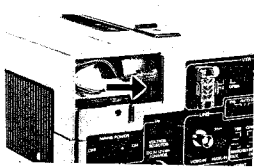


Fig. 1-6

If the BATT ALARM indicator should light red after installing the battery pack, recharge or replace the battery pack with a fresh one. A battery pack running out of power should be recharged immediately.

1.8 RECHARGING THE PBP-1 BATTERY PACK

The AA-P41EG/EK/S AC Power Adapter is required to rechange the exclusive PBP-1. The AA-P41EG/EK/S AC Power Adapter can recharge two PBP-1 battery packs simultaneously; one installed inside the monitor and the other separate from the unit — a spare battery.

1. Plug the provided power cord into the AC IN terminal of the AA-P41EG/EK/S. Connect the AC power adapter to an AC power supply.
2. When the battery pack installed within the monitor is to be recharged, connect the DC output cable of the adapter to the DC IN 12 V/CHARGE connector.
3. The monitor should be set to OFF. The battery cannot be recharged unless the OFF/VOLUME control knob is positioned at OFF.

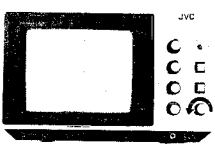


Fig. 1-8

4. When a spare battery pack is to be recharged simultaneously, connect the PBP-1 battery pack to the EXT BATTERY terminal of the adapter.

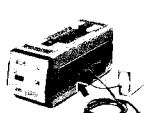


Fig. 1-9

5. Set the adapter's power switch to ON. Recharging will begin.
6. Check the charging condition with the meter provided on the adapter.

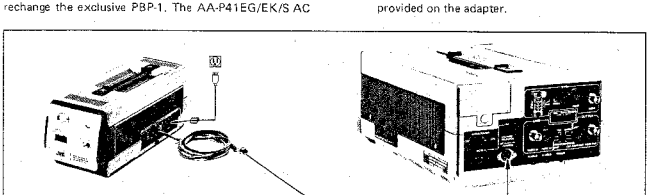


Fig. 1-7

Fig. 1-10

How to check the charging condition

1. The meter needle deflects to the right when charging starts.

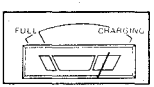


Fig. 1-11

2. The meter needle deflects towards the left as charging proceeds.

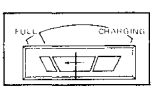


Fig. 1-12

3. When the meter needle points to FULL, the battery has been fully charged.

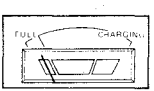
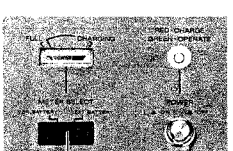


Fig. 1-13



Meter select switch

Fig. 1-14

Meter select switch

VCR BATTERY:
to check the charging condition of the battery pack installed in the monitor.
EXT BATTERY:
to check the charging condition of the battery pack directly connected to the AC power adapter.

NOTE:

- *About 8 hours are required to fully charge the battery pack. However, it is recommendable to continue charging a little longer (about 10–12 hours).*

Exclusive PBP-1 battery pack

- Do not short-circuit the outer rim of the plug to its centre pin.
- Even when you are not using the battery pack for a long period of time, recharge it from time to time. This is because the battery pack will gradually discharge by itself.
- Always recharge the battery pack after use and store it 100% charged.
- Once the battery pack is fully discharged, it becomes unusable.
- The PBP-1 is a lead/acid battery. Therefore, when it is used at temperatures below 5° C (41° F), its capacity may be reduced as much as half.

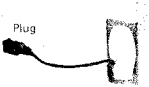


Fig. 1-15

1.9 CONNECTIONS

Using in combination with a JVC VHS recorder

The TM-41EG/EK is most convenient when you use it in combination with a portable recorder and camera to monitor camera work when operating outdoors.

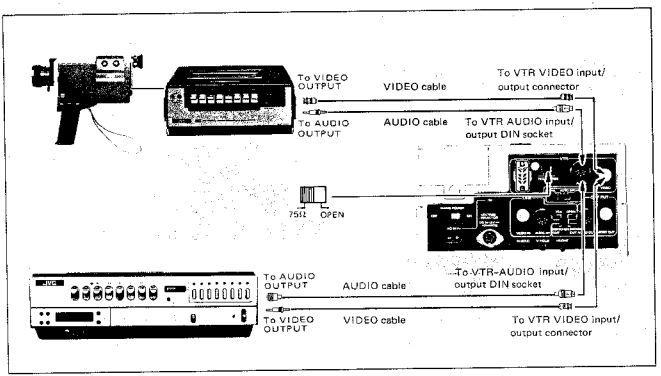


Fig. 1-16

For monitoring, press the INPUT SELECT "VTR" switch on the front panel.

- For monitoring, press the INPUT SELECT "VTR" switch on the front panel.

Using in combination with a video recorder having an 8-pin VTR connector

- To obtain bridged outputs from a source applied to the connectors to the right, shift this switch to OPEN. Leave this switch at 75 Ω in other cases.

Caution
No video/audio output is available from the 8-pin VTR connector. Recording directly from this connector is not possible.

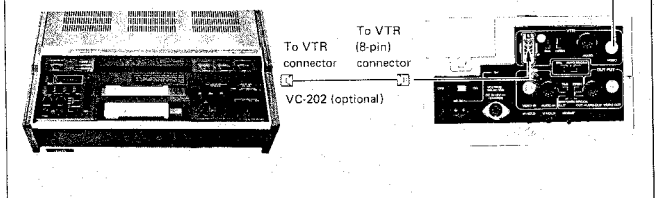


Fig. 1-17

Using both the VTR and LINE circuits

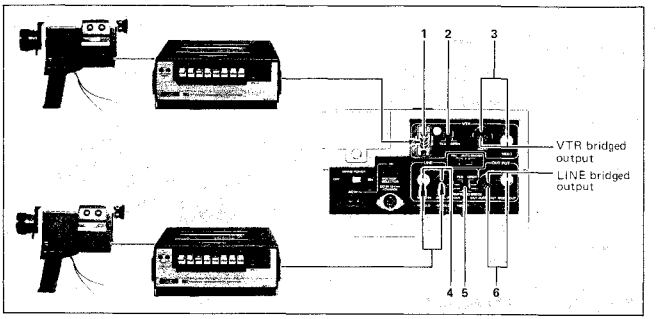


Fig. 1-18

For monitoring the system connected to the VTR connector, press the INPUT SELECT "VTR" switch and, for the system connected to the LINE connectors, press the INPUT SELECT "LINE" switch, both on the front panel.

Operation chart (the numbers correspond to those shown in the above illustration)

Input connectors	Termination switch	Input select switch on the front panel	Bridged output	Switched output
❶ Apply input signals.	❷ 75 Ω	VTR	–	–
❶ Apply input signals.	❷ OPEN	VTR	❸ Audio/ video bridged outputs available	–
❸ Apply input signals.	❷ 75 Ω	VTR	–	–
❹ Apply input signals.	❺ BRIDGE OUT	LINE	❻ Bridged outputs available	–
Apply input signals to both ① and ④.	❷ ❺ 75 Ω SWITCH OUT	VTR or LINE	–	❻ Outputs selected by the input select switch available

SECTION 2
DISASSEMBLY

2.1 TOP COVER

Take out 6 screws ① shown in Fig. 2-1. Gently press the top of the front panel in the forward direction and open the top cover. Disconnect connector Ⓐ (see Fig. 2-2) of the battery case from the power supply board, then remove the top cover.

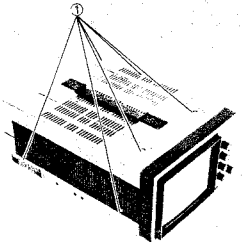


Fig. 2-1

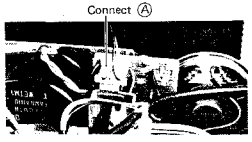


Fig. 2-2

2.2 POWER CORD ASSEMBLY

Take out 2 screws ① shown in Fig. 2-3. Raise the power supply board assembly upward to remove.

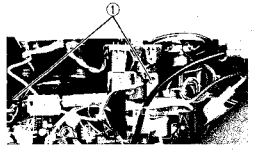


Fig. 2-3

2.3 FRONT PANEL

Remove the top cover. Disconnect the CRT socket, CRT ground, anode cap and deflection yoke. Take out 2 screws ① shown in Fig. 2-4 and remove the front panel.

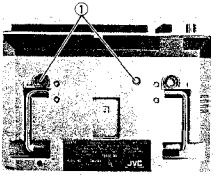


Fig. 2-4

2.4 CRT

Remove the front panel. Take out 4 screws ① shown in Fig. 2-5 and remove the CRT.

2.5 CONTROL BOARD ASSEMBLY

After the front panel has been removed, pull off 5 control knobs. Take out 2 screws ② shown in Fig. 2-5. The control board assembly can then be removed.

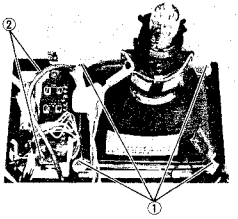


Fig. 2-5

2.6 MAIN BOARD

Remove the power supply assembly and front panel (see steps 2 and 3). Take out 5 screws ① shown in Fig. 2-6 and remove the main board.

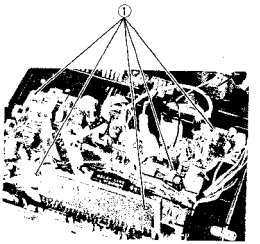


Fig. 2-6

2.7 VIDEO/AUDIO BOARD-1

Remove the top cover and the jack board assembly. Unsolder the points shown by arrows in Fig. 2-7 and remove the board.

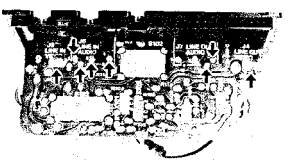


Fig. 2-7

2.8 VIDEO/AUDIO BOARD-2

In the same manner as step 7, unsolder the points shown by the arrows in Fig. 2-8 and remove the board.

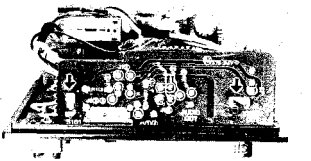


Fig. 2-8

SECTION 3
ALIGNMENT PROCEDURE

3.1 B1 VOLTAGE (10.5 V)

Measure the voltage between TP-91 of the power supply and ground. Adjust R501 (B1) to obtain 10.5 V. See Fig. 3-1.

1) Be sure to perform this adjustment before proceeding to other repairs and adjustments.
2) Use a good quality voltmeter (internal resistance at least 20 kΩ/V) to perform measurement.

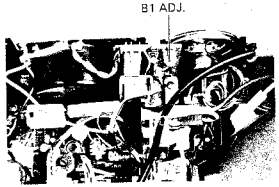


Fig. 3-1

3.2 PAL COLOR CIRCUIT ADJUSTMENT

1. Test Equipment and Tools
   Dual trace oscilloscope (with X-Y input facilities)
   PAL color bar generator
   Bias power source
   Insulated adjusting rod
   Short jumper wire

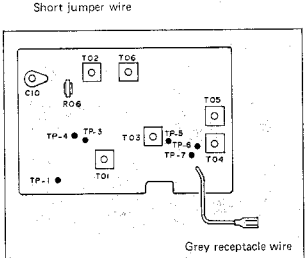


Fig. 3-2

2. Adjustment Steps
   1) Supply a PAL color bar signal.
   2) Connect the X probe of the oscilloscope to U4 of TRC-5210A and the Y probe to U5. Observe the Lissajous pattern as shown in Fig. 3-3.

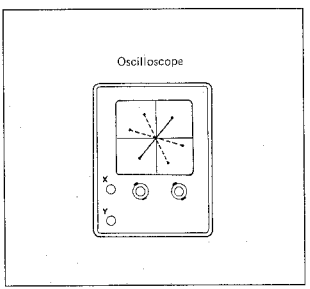


Fig. 3-3

   3) Connect jumper wire between TP3 and TP4.
   4) Supply approx. 3.7 V DC bias to TP1.
   5) Turn R06 (DL AMP) and, as shown in Fig. 3-4, adjust to where waveform A changes to waveform B.

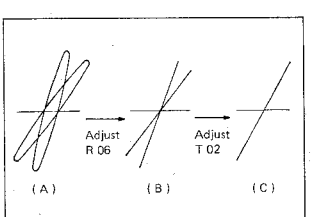


Fig. 3-4

   6) Turn the core of T02 (DL P. TRANS) to change waveform B to waveform C.
   7) Adjust C10 trimmer capacitor to set color sync.

3.3 SECAM COLOR CIRCUIT ADJUSTMENT

1. Test Equipment and Tools
   Oscilloscope
   SECAM color bar generator
   VTVM
   Insulated adjusting rod
2. Adjustment Steps
   1) Supply a SECAM color bar signal.
   2) Connect oscilloscope probe to TP5 and, as shown in Fig. 3-5, adjust the core of T3 to align the peaks of the waveform.

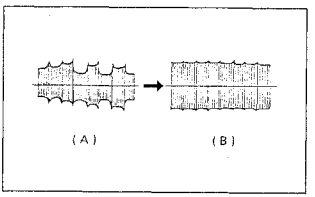


Fig. 3-5

   3) Disconnect the grey receptacle wire from TRC-5210A.
   4) Connect VTVM between TP6 (+) and TP7 (–). Adjust the core of T04 for maximum (approx. 1 Vp-p) at both ends. At this time, confirm normal color bar phase.
   5) Observe the waveform at the coupling point between L1001 and C1005. Adjust the core of T06 to set the retrace level as shown in Fig. 3-6.

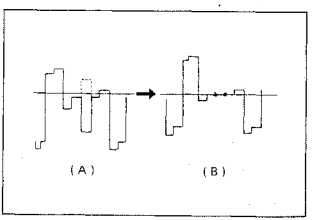


Fig. 3-6

   6) Observe the waveform at the coupling point between L1002 and C1005. Adjust the core of T05 to set the retrace level as shown in Fig. 3-7.

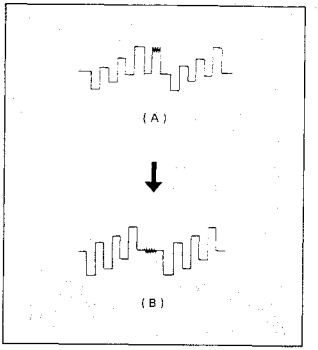


Fig. 3-7

3.4 PURITY

1) Display a monochrome pattern.
2) As viewed from the back (see Fig. 3-8), turn the magnet lock counter-clockwise to loosen it.

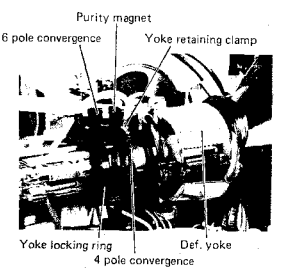


Fig. 3-8

3) Turn the green cutoff VR fully clockwise and the red and blue cutoff VRs fully counter-clockwise. Adjust the screen VR so that the vertical green band becomes easy to see.

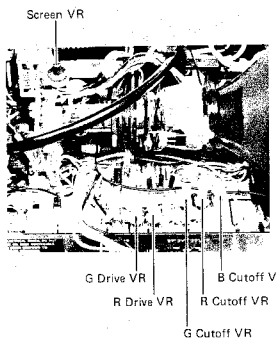


Fig. 3-9

4) Loosen the deflection yoke securing screw and slide the yoke fully rearward to obtain color shading in the green band.

5) Overlap the long and short purity magnet tabs and position them horizontally (see Fig. 3-10).

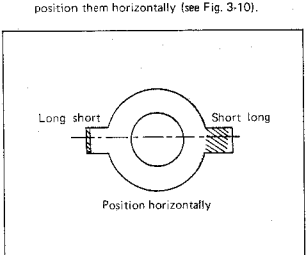


Fig. 3-10

6) Open and close the two purity magnets (scissor fashion) and adjust so that the green band is positioned at the center of the picture.

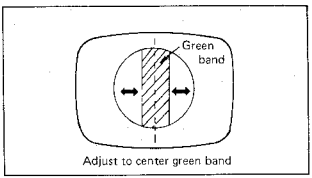


Fig. 3-11

7) Change the service lead connection from the normal to the SERVICE position to obtain a single horizontal line. Confirm that the vertical center position does not deviate. If deviation occurs, while keeping the same relative opening between the magnets, turn both magnets and adjust to center the line as closely as possible (Fig. 3-12).

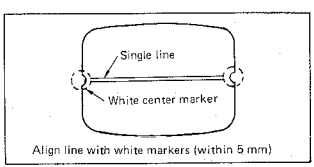


Fig. 3-12

8) Repeat above steps 6 and 7.

9) Return the service lead to its normal position. Slide the deflection yoke forward and adjust its position so that the green color completely fills the picture area.

10) Confirm that both red and blue single color resters can also be obtained.

11) Without moving the deflection yoke, tighten its securing screw. Tighten the magnet lock lightly so that there is no movement when the 6 pole magnets are lightly touched.

3.5 CONVERGENCE

1) Employ a crosshatch pattern and adjust the brightness so that the image is clear, but slightly darkened.

2) Turn the red and blue cutoff VRs fully clockwise and the green cutoff VR fully counter-clockwise. Adjust the screen VR for an easily seen image (see Fig. 3-9).

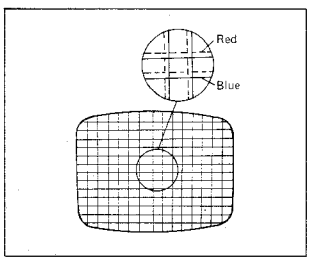


Fig. 3-13

3) Turn the two 4 pole convergence magnets and adjust so that red and blue become overlapped throughout the picture area to yield magenta (Fig. 3-13).

4) Turn the green cutoff VR full clockwise and adjust the two 6 pole convergence magnets so that the green and magenta become overlapped throughout the picture area to yield white (Fig. 3-14).

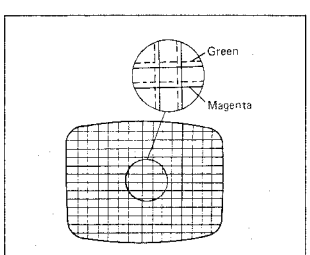


Fig. 3-14

*After completing purity and convergence adjustments;

1) Turn magnet lock clockwise (as viewed from rear of set) and tighten securely.

2) Tighten the deflection yoke screw securely.

3.6 WHITE BALANCE

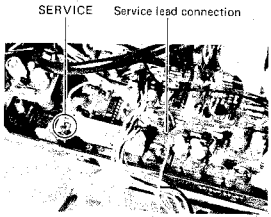


Fig. 3-15

1) Display a monochrome pattern.

2) Change the service lead connection to the SERVICE position to obtain a single horizontal line. (See Fig. 3-15).

3) Turn the red, blue and green cutoff VRs and the screen VR fully counter-clockwise to eliminate luminance (see Fig. 3-9).

4) Gradually turn the screen VR clockwise to where single line of one of the colors appears.

5) Turn the cutoff VR of this color clockwise about 10 degrees.

6) Again turn the screen VR so that this color appears only faintly.

7) Adjust the other cutoff VRs so that the horizontal line becomes white.

8) Return the service lead to the normal position.

9) With a dark picture, perform fine adjustment to obtain optimum white balance.

10) With a bright picture, adjust the red and green drive VRs for optimum white balance.

3.7 SUBCONTRAST AND SUB-BRIGHTNESS

Display a picture and set the front panel contrast and brightness controls to the center click positions. Adjust R116 (subcontrast) and R133 (sub-brightness) of the main board for optimum display.

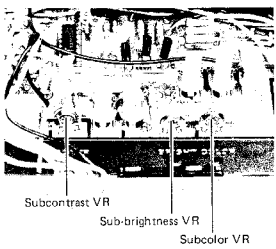


Fig. 3-16

3.8 SUBCOLOR

Display a fleshtone pattern and set the front panel tint and color controls to the center click positions. Turn R1030 (subcolor) of the main board and adjust for most natural fleshtone display.

3.9 V. HEIGHT AND H. WIDTH

Display a pattern which allows easy confirmation of symmetry (such as a circle or crosshatch). Adjust R311 (V. height) and the core of L402 (H. width) for optimum size relationships.

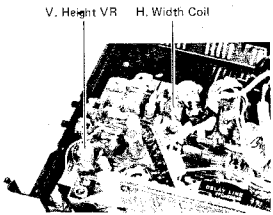


Fig. 3-17

3.10 V. CENTER

Turn R324 (V. center) to adjust picture center.

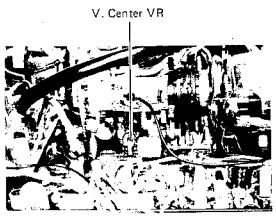


Fig. 3-18

3.11 FOCUS

Turn R420 (focus) and adjust for the range of optimum overall picture focus. Within this range, set the VR to the most clockwise position. Also confirm that focus is obtained with a dark picture.

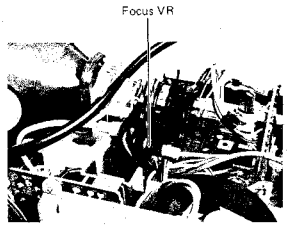
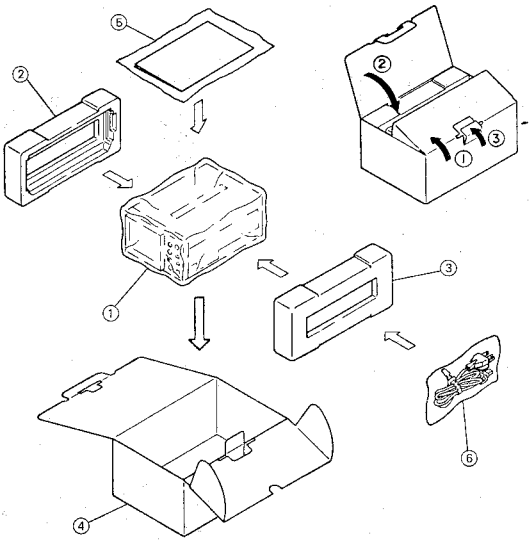


Fig. 3-19

SECTION 4
REPACKING



Symbol No.	Part No.	Part Name	Description
1	AP3279-018	Poly Cover	
2	AP1301-001	Cushion	
3	AP1301-002	"	
4	AP3412-4	Packing Case	TM-41EG
	AP3412-5	"	TM-41EK
5	PU30425-309	Instruction Book	
	PU47353	Video Cable	
	PU49200	Audio Cable	
	A32200-001	Hood	Accessories
	QME1308-009	Earphone	
	QPGA015-02005	Poly Bag	
⚠ 6	QMP3950-183	Power Cord	TM-41EG
⚠	PU46128	"	TM-41EK
	QPGA015-02005	Poly Bag	

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

SECTION 5
EXPLODED VIEWS AND PARTS LIST

5.1 SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

5.2 GENERAL RULER FOR NUMBERING METHOD OF SCREW/WASHER/E-RING

Type of screw — Diameter — Length in mm — ISO screw

1. 2. 3. 4. 5. 6. 7. 8. 9. 10.

See. 1-1 (Shape of head) See. 1-2 (Material)

Type of screw

S	Normal screw
N	Assembly screw
L	"
D	"
G	"
M	W. Wood screw
F	Feather screw
T	Set screw
Y	"
B	Bolt
N	Nut
W	Washer
R	E-ring
E	–
P	Spring

Shape of head

P		Pan head
S		Flat countersunk head
H		Oval countersunk head
D		Binding head
R		Round head
B		Round head
T		Truss head
W		Washer head

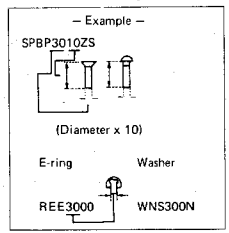
Material

Symbol letter	Material
S	Steel
E	Stainless steel
C	Cast iron
U	Bronze
B	Brass
P	Phosphor bronze
N	German silver
Y	Brass
A	Aluminum
Z	Zinc-alloy
K	Polycarbonate

1-1 Type of screw

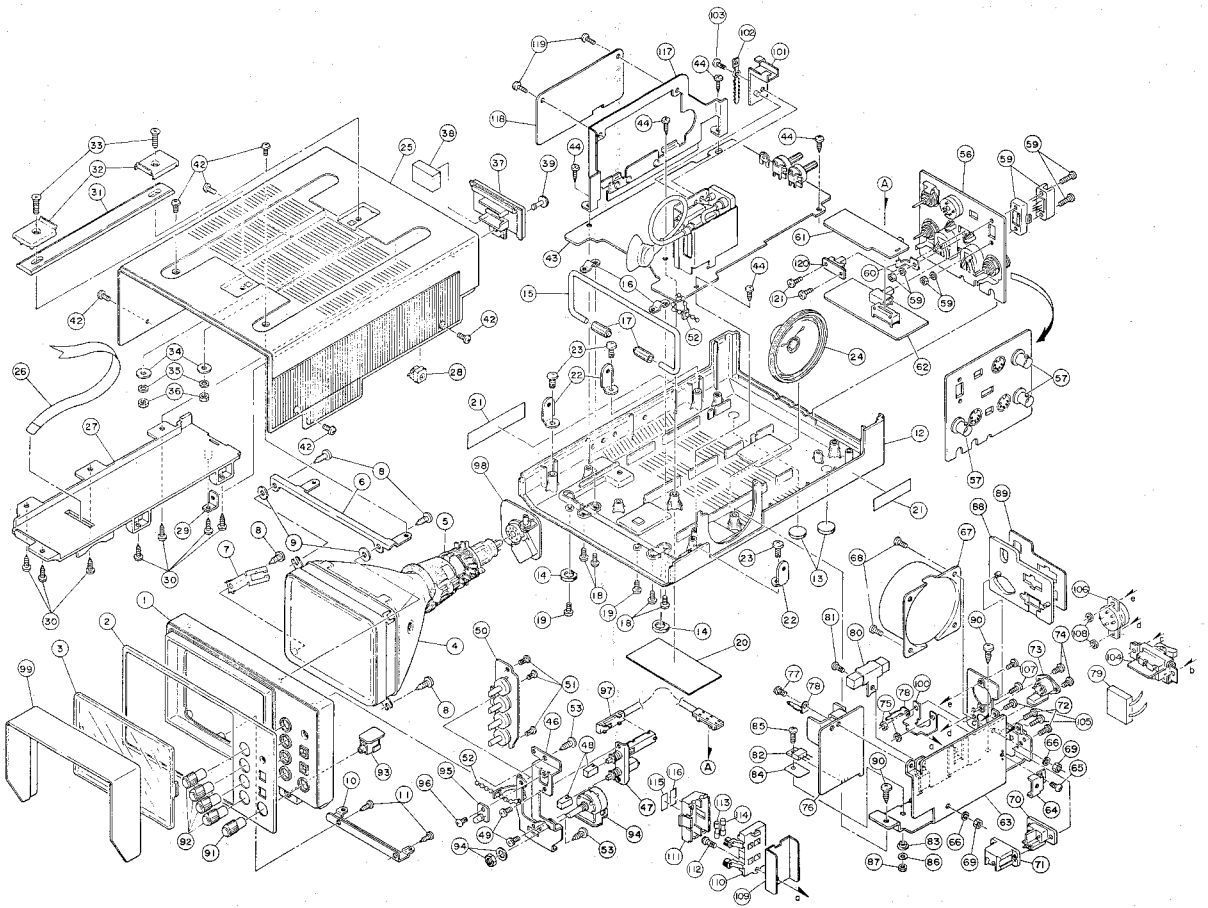
P	Cross-Recessed head screw
A	Tapping screw
B	Tapping screw
T	Tapping screw

1-2 Diameter and Length of screw



Surface treatment

Symbol letter	Surface treatment
Z	Galvanization, dichromic acid treatment (MFZn2-C)
N	Nickel plating (MFNi2, MFNi1)
R	Chrome plating (MBCr2, MBCr1)
G	Silver plating (SP4)
W	Nichrome platings
P	Phosphite treatment
B	Bronze plating
M	Black coloring after galvanization
A	Red coloring after galvanization
C	Blue coloring after galvanization
T	Green coloring after galvanization
V	Violet coloring after galvanization
F	Iron with black coloring



5.3 GENERAL ASSEMBLY PARTS LIST

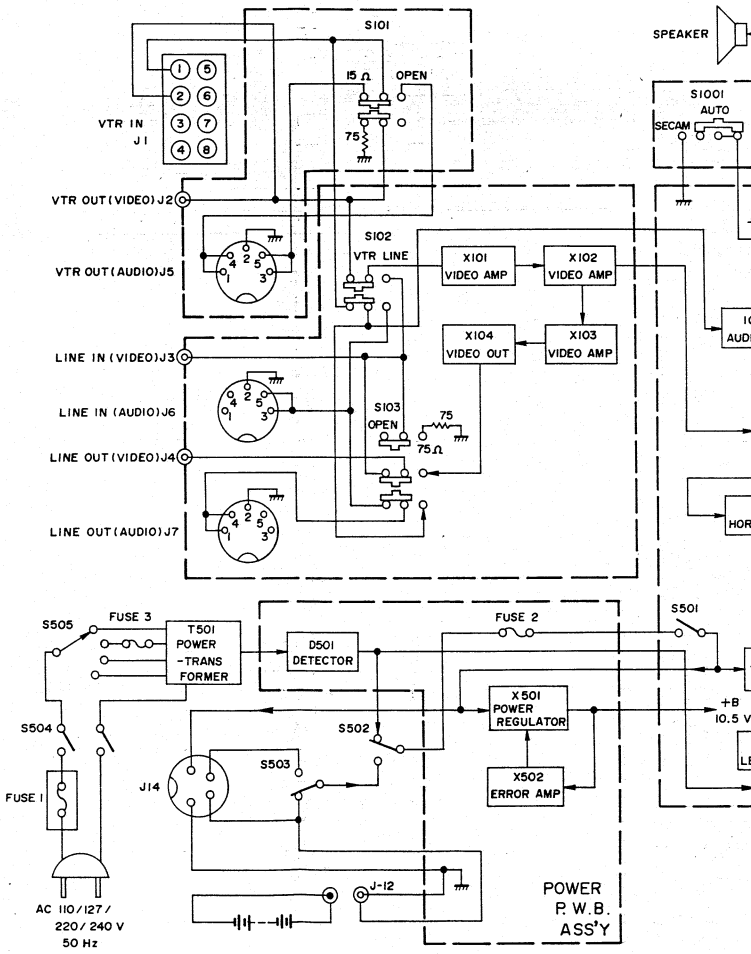
SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with parts number specified.

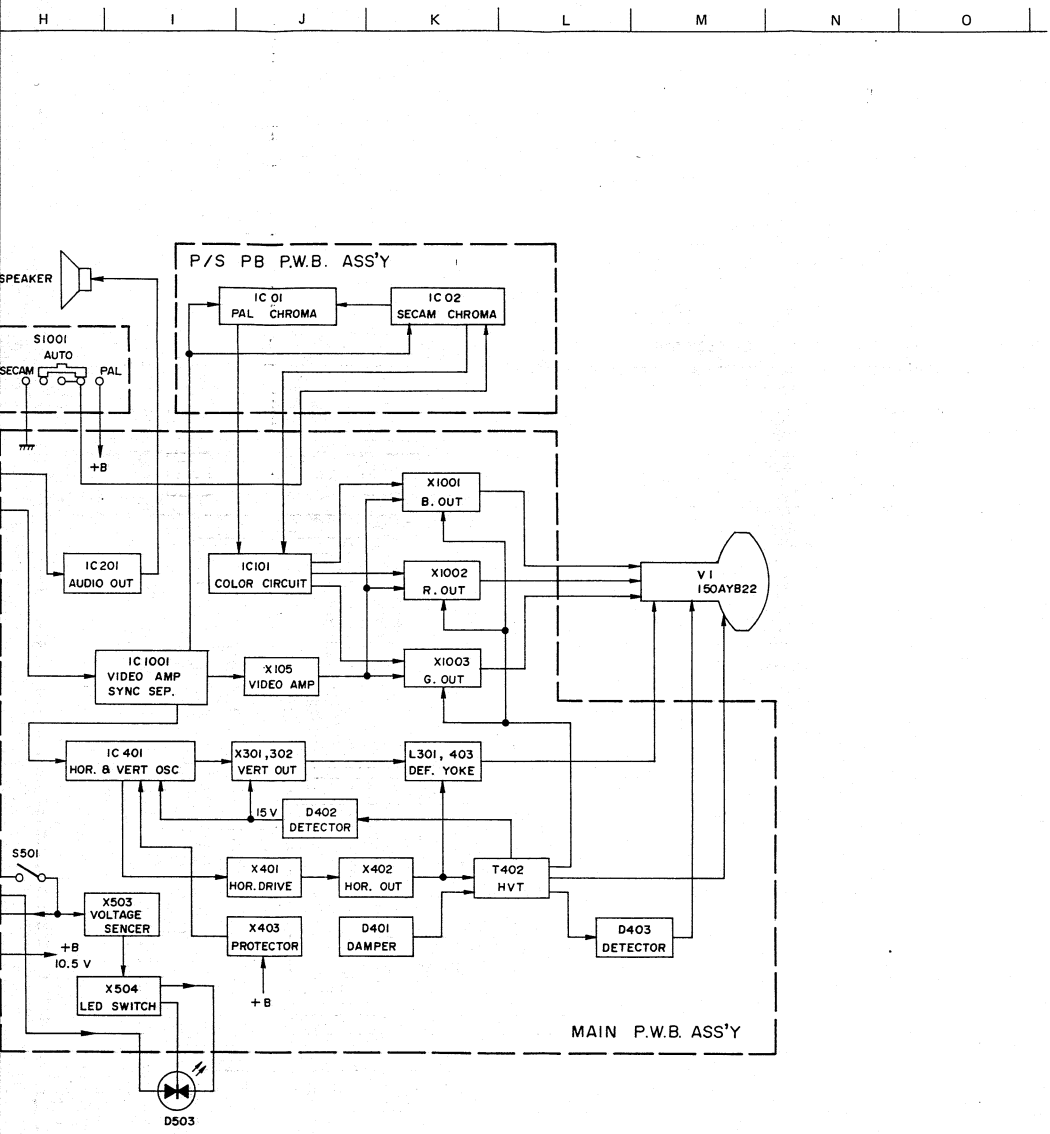
Symbol No.	Part No.	Part Name	Remarks	Q'ty
1	A10402-001	Front Panel		1
2	A20946-3	Plate		1
3	A20960-001	Protector Glass		1
⚠ 4	150AYB22	CRT		1
⚠ 5	C29125-A	Deflecting Yoke		1
6	A32158-001	Top Bracket		1
7	A60146-001	Earth Spring		1
8	GBSA4016Z	Screw		4
9	Q03091-110	Washer		2
10	A60139-001	Front Bracket		1
11	SDSA3012Z	Tap. Screw		2
12	A10404-001	Bottom Cover		1
13	A60153-001	Foot		2
14	A60153-002	"		2
15	A60143-001	Stand		1
16	A60144-001	Stand Holder		1
17	A60145-001	Foot		2
18	SSSP3008RS	Screw		4
19	SDSA3010R	"		3
20	A31694-166	Label	(Rating)	1
21	A31694-167	"	(Caution)	1
22	A60140-001	Side Bracket		3
23	SDSA4012Z	Tap. Screw		3
24	SK-2120QM	Speaker	16 Ω	1
25	A10403-00BUL	Top Cover		1
26	A45555-003	Ribbon		1
27	A20945-3	Battery Holder		1
28	QMA1221-001	Ext. Battery Jack Ass'y		1
29	A60142-001	Battery Bracket		1
30	SDSA3012Z	Tap. Screw		7
31	PU46361	Handle		1
32	PU46385	Handle Cover		2
33	SHSP4016MS	Screw		2
34	Q03091-110	Washer		2
35	WLS4000Z	Lock Washer		2
36	NNZ4000ZS	Nut		2
37	A32148-001	Battery Cover		1
38	A41455-044	Cushion		1
39	PU46282	Lock Screw		1
40	A31694-169	Label		1
41	—	—		—
42	SDSP3008RS	Screw		8
43	—	Main P.W.B. Ass'y		1
44	SDSA3012Z	Tap. Screw		5
45	—	—		—
46	A60138-001	VR Bracket		1
47	QSHP04-001	Push Switch		1
48	A60149-001	Select Knob		2
49	LPSP3006ZS	Screw		2
50	—	Volume P.W.B. Ass'y		1
51	S8SB3008Z	Tap. Screw		3
52	QHX1108-001	Wire Clamp		2
53	SDSA4012Z	Tap. Screw		2
54	—	—		—
55	—	—		—
56	A32216A	Jack Board Ass'y		1
57	PU48567	BNC Connector		3
58	—	—		—
59	GU20125-42-8	8-Pin Connector		1
60	A60155-001	Plate		1

Symbol No.	Part No.	Part Name	Remarks	Q'ty
61	—	Video/Audio Board-2		1
62	—	Video/Audio Board-1		1
63	A32152-3	Heat Sink		1
64	A60141-001	Bracket		1
65	SBSB3008Z	Tap. Screw		1
66	WNS4000Z	Washer		2
⚠ 67	A03210-D	Power Trans. Ass'y		1
68	LPSP4008ZS	Screw		2
69	NFZ4000ZS	Nut		2
70	QMC0263-001	AC Socket Ass'y		1
71	V44399-00D	Cap Ass'y		1
72	SPSP2610ZS	Screw		2
73	QMC9016-002	Socket (DIN)		1
74	SDSP3008RS	Screw		2
75	NNZ3000ZS	Nut		2
76	—	Power P.W.B. Ass'y		1
77	SBSB3008Z	Tap. Screw		1
78	A74122	Lug		2
⚠ 79	QFZ9009-473	MPP Cap	0.047 μF AC 250 V (C508)	1
⚠ 80	QRF107K-150	Unflammable Resistor	15 Ω 10 W, K (R501)	1
81	SBSB3008Z	Tap. Screw		1
⚠ 82	2SB566C	Transistor	(X501)	1
83	BUSH-F	Washer		1
84	1S313	Spacer		1
85	LPSP3010ZS	Screw		1
86	WNS3000Z	Washer		1
87	NFZ3000ZS	Nut		1
88	A32154-3	Power Holder		1
89	A32155-3	Power Plate		1
90	SDSA4012Z	Tap. Screw		2
91	AXKMA12-2015AX	Knob		1
92	AXKMA12-2015BX	"		4
93	—	Jack P.W.B. Ass'y		1
94	QVB9D7A-054	OFF-Volume		1
95	—	LED P.W.B. Ass'y		1
96	SBSB3008Z	Tap. Screw		1
97	QSH2002-347B	Wire	(S102)	1
98	—	CRT Socket P.W.B. Ass'y		1
99	A32200-001	Hood		1
100	A60281-001	Insulator		1
101	A32211-001	Holder		1
102	A45979-001	Wire Clamp		1
103	SBSB3006Z	Tap. Screw		1
104	QSE2135-002	Main Switch		1
105	SPSP3010ZS	Screw		2
⚠ 106	QSR0074-010	Voltage Selector		1
107	SPSP3010ZS	Screw		2
108	NNZ3000ZS	Nut		2
109	A60291-1	Fuse Bracket		1
110	A38548-AV0	Fuse Holder		1
111	A38549-IV0	Fuse Cover		1
112	SBSB3008Z	Tap. Screw		1
⚠ 113	QMF51A2-R63	Fuse	(F1)	1
⚠ 114	QMF51A2-R315	"	(F3)	1
115	C40078-60	Label		1
116	C40078-59	"		1
117	A32217-1	Bracket		1
118	—	P/S PB P.W.B. Ass'y		1
119	SBSB3008Z	Tap. Screw		2
120	—	Color System P.W.B. Ass'y		1
121	SDSA3012Z	Screw		2

6.1 BLOCK DIAGRAM



ECTION 6
ND CIRCUIT BOARDS



NOTE:

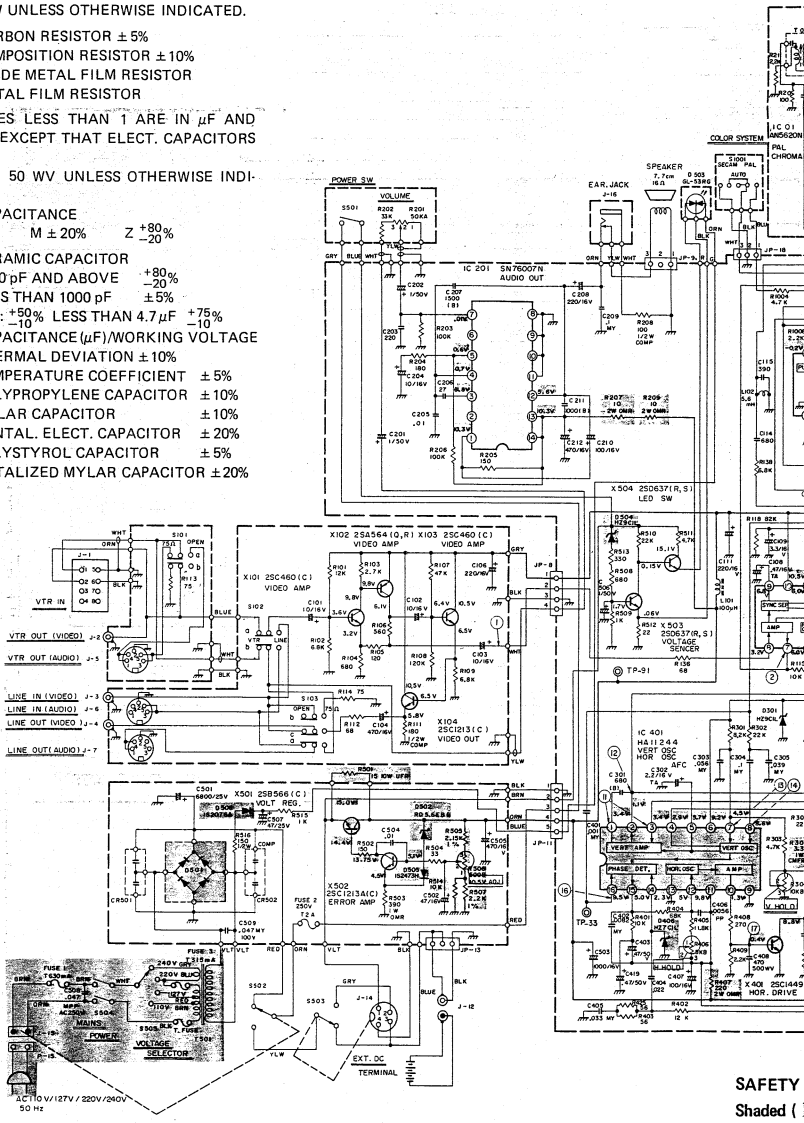
1) ALL VOLTAGES SHOW READINGS BY CIRCUIT TESTER (20 KΩ/V) ON RECEPTION OF 1 Vp-p COLOR BAR VIDEO SIGNAL.
   VOLTAGES IN PARENTHESES REFER TO SECAM MODE. WHEN ONLY ONE VALUE APPEARS, IT REFERS TO BOTH PAL AND SECAM MODES.

2) ALIGNMENT ═══ OPERATION FOR USER
   ——— OPERATION FOR SERVICE

3) ALL RESISTANCE VALUES ARE IN OHMS.
   K : 1,000 Ω M : 1,000,000 Ω
   RESISTORS ARE 1/4 W UNLESS OTHERWISE INDICATED.
   UNSPECIFIED : CARBON RESISTOR ± 5%
   COMP. : COMPOSITION RESISTOR ± 10%
   OMR : OXIDE METAL FILM RESISTOR
   MFR : METAL FILM RESISTOR

4) CAPACITANCE VALUES LESS THAN 1 ARE IN μF AND 1 AND ABOVE IN pF EXCEPT THAT ELECT. CAPACITORS ARE IN μF.
   RATING VOLTAGE IS 50 WV UNLESS OTHERWISE INDICATED.
   TOLERANCE FOR CAPACITANCE
   J ± 5% K ± 10% M ± 20% Z $^{+80}_{-20}$%
   UNSPECIFIED : CERAMIC CAPACITOR
   1000 pF AND ABOVE $^{+80}_{-20}$%
   LESS THAN 1000 pF ± 5%
   ELECT. CAPACITOR: $^{+50}_{-10}$% LESS THAN 4.7 μF $^{+75}_{-10}$%
   CAPACITANCE (μF)/WORKING VOLTAGE
   B : THERMAL DEVIATION ± 10%
   CH, RH : TEMPERATURE COEFFICIENT ± 5%
   PP : POLYPROPYLENE CAPACITOR ± 10%
   MY : MYLAR CAPACITOR ± 10%
   TA : TANTAL. ELECT. CAPACITOR ± 20%
   PS : POLYSTYROL CAPACITOR ± 5%
   MPP : METALIZED MYLAR CAPACITOR ± 20%

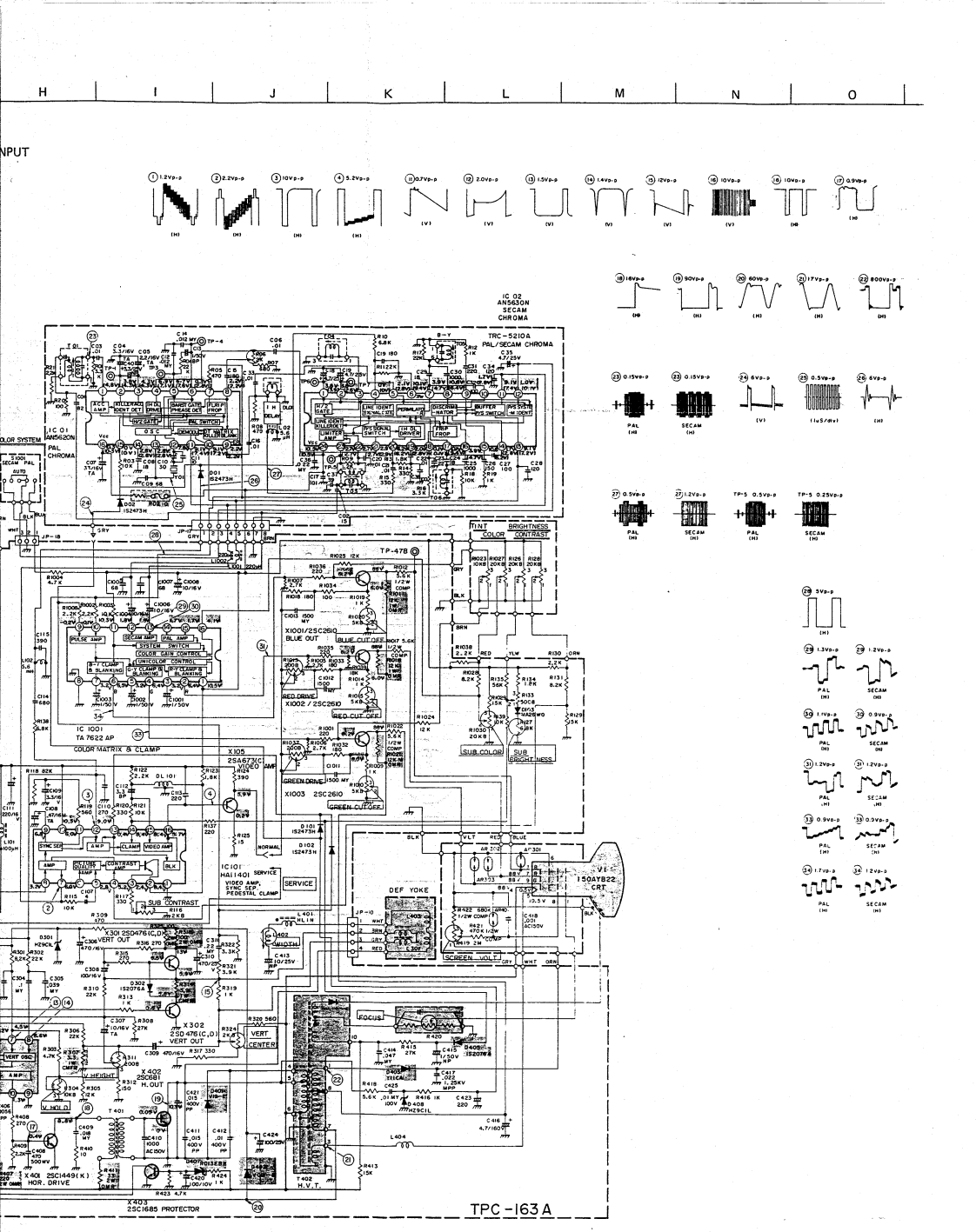
5) SELECTOR SW (POSITION)
   S101(a, b) : TERMINAL IMP. SELECTOR FOR VTR INPUT (75 Ω)
   S102(a, b) : INPUT SELECTOR (VTR)
   S103(a, b, c) : LINE OUT SELECTOR (BRIDGE OUT)
   S501 : POWER SW (OFF)
   S504 : MAINS POWER (OFF)
   S505 : VOLTAGE SELECTOR (240 V)
   S1001 : COLOR SYSTEM (AUTO)



SAFETY
Shaded (

H | I | J | K | L | M | N | O

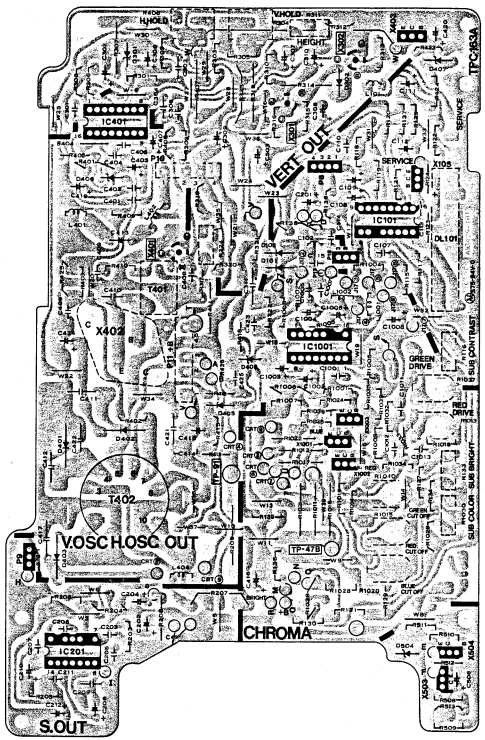
NPUT



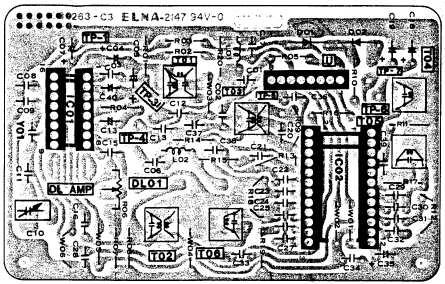
SAFETY PRECAUTION

Shaded (▨) parts are critical for safety. Replace only with part number specified.

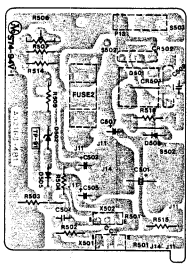
– MAIN P.W.B. ASS'Y –



– PAL/SECAM PB P.W.B. ASS'Y –



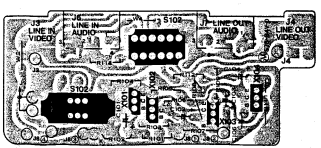
– POWER P.W.B. ASS'Y –



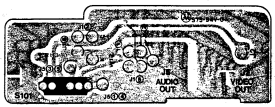
– POWER SWITCH P.W.B. ASS'Y –

– COLOR SYSTEM P.W.B. ASS'Y –

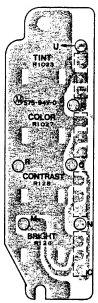
– VIDEO/AUDIO BOARD-1 –



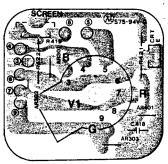
– VIDEO/AUDIO BOARD-2 –



– VOLOME P.W.B. ASS'Y –



– CRT SOCKET P.W.B. ASS'Y –

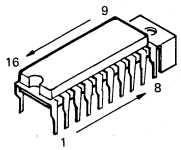


– LED P.W.B. ASS'Y –

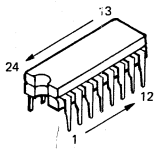
– JACK P.W.B. ASS'Y –

IC & Transistor Basing

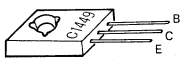
– AN5620X –



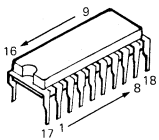
– AN5630N –



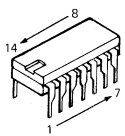
– 2SC1449K –



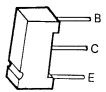
– HA11247 –



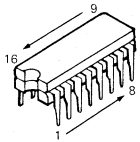
– SN76007N –



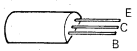
– 2SD637R,S –



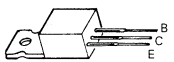
– HA11401 –
– HA11244 –
– TA7622AP –



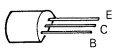
– 2SC2610 –



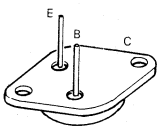
– 2SB566C –
– 2SD476C,D –



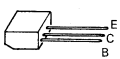
– 2SA564Q,R –
– 2SC1685R –



– 2SC681 –



– 2SC460C –
– 2SA673C –
– 2SC1213C –



SECTION 7
ELECTRICAL PARTS LIST

1. SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety.
Replace only with parts number specified.

2. Abbreviations in this list are as follows:

RESISTORS – All resistance values are in ohms (Ω).

K	:	1 000
M	:	1 000 000
CR	:	Carbon Resistor
Comp. R	:	Composition Resistor
WR	:	Wire Wound Resistor
OMR	:	Oxide Metal Film Resistor
VR	:	Variable Resistor (Potentiometer)
MFR	:	Metal Film Resistor
FR	:	Fusible Resistor

CAPACITORS – All capacitance values are in μF, unless otherwise indicated.

P	:	μμF
C Cap	:	Ceramic Capacitor
E Cap	:	Electrolytic Capacitor
FM Cap	:	Film Mica Capacitor
MM Cap	:	Metalized Mylar Capacitor
MP Cap	:	Metalized Paper Capacitor
MY Cap	:	Mylar Capacitor
NP Cap	:	Non-polar Capacitor
PC Cap	:	Polycarbonate Capacitor
PP Cap	:	Poly Pro Capacitor
PS Cap	:	Polystyrol Capacitor
T Cap	:	Tantalum Capacitor
TR Cap	:	Trimmer Capacitor

Tolerances of resistors or capacitors are as follows:

M	:	± 20 %
K	:	± 10 %
J	:	± 5 %
G	:	± 2 %
F	:	± 1 %

7.1 MAIN P.W.B. ASS'Y

Symbol No.	Part No.	Part Name	Description
IC101	HA11401	Integrated Circuit	
IC201	SN76007N	"	
⚠ IC401	HA11244	"	
IC1001	TA7622AP	"	
X105	2SA673C	Transistor	
X301	2SD476C, D	"	
X302	"	"	
⚠ X401	2SC1449K	"	
⚠ X402	2SC681	"	
⚠ X403	2SC1685R	"	
X503	2SD673R, S	"	
X504	"	"	
X1001	2SC2610	"	
X1002	"	"	
X1003	"	"	
D101	1S2473H	Diode	
D102	"	"	
D301	HZ8C1LF7	Zener Diode	
D302	1S2076A	Diode	
⚠ D401	V19E	"	
⚠ D402	V08E	"	
⚠ D403	Y11CA	"	
D404	–	–	
⚠ D405	1S2076A	Diode	
⚠ D406	HZ7C1LF7	Zener Diode	
⚠ D407	RD12E83	"	
D408	HZ9C1LF7	"	
⚠ D504	HZ9C1L01F7	"	
R115	QRD141J-103S	CR	10 K 1/4 W, J
R116	QVP2A0B-023	VR (SUB CONTR)	2 K
R117	QRD141J-331S	CR	330 1/4 W, J
R118	" -823S	"	82 K "
R119	" -561S	"	560 "
R120	" -331S	"	330 "
R121	" -103S	"	10 K "
R122	" -222S	"	2.2 K "
R123	" -182S	"	1.8 K "
R124	" -391S	"	390 "
R125	" -150S	"	15 "
R126	–	–	
R127	QRD141J-682S	CR	6.8 K 1/4 W, J
R128	–	–	
R129	QRD141J-153S	CR	15 K 1/4 W, J
R130	" -222S	"	2.2 K "
R131	" -822S	"	8.2 K "
R132	–	–	
R133	QVP2A0B-052	VR (SUB BRIGHT)	500
R134	QRD141J-152S	CR	1.5 K 1/4 W, J
R135	" -683S	"	68 K "
R136	" -680S	"	68 "
R137	" -221S	"	220 "
R138	" -682S	"	6.8 K "
R139	" -103S	"	10 K "

Symbol No.	Part No.	Part Name	Description
R202	QRD141J-333S	CR	33 K 1/4 W, J
R203	" -104S	"	100 K "
R204	" -181S	"	180 "
R205	" -151S	"	150 "
R206	" -104S	"	100 K "
⚠ R207	QRG029J-100	OMR	10 2 W, J
R208	QRC122K-101	Comp. R	100 1/2 W, K
⚠ R209	QRG029J-100	OMR	10 2 W, J
R301	QRD141J-822S	CR	8.2 K 1/4 W, J
R302	" -223S	"	22 K "
R303	" -472S	"	4.7 K "
R304	QVF4A6B-014	VR (V. HOLD)	10 K
R305	QRD141J-123S	CR	12 K 1/4 W, J
R306	" -223S	"	22 K "
⚠ R307	QRX019J-3R3	MFR	3.3 1 W, J
R308	QRD141J-273S	CR	27 K 1/4 W, J
R309	" -471S	"	470 "
R310	" -223S	"	22 K "
R311	QVP2A0B-022	VR (HEIGHT)	200
R312	QRD141J-151S	CR	150 1/4 W, J
R313	" -102S	"	1 K "
⚠ R314	QRX019J-3R9	MFR	3.9 1 W, J
R315	QRD141J-271S	CR	270 1/4 W, J
R316	" -271S	"	270 "
R317	" -331S	"	330 "
⚠ R318	QRG029J-101	OMR	100 2 W, J
R319	QRD141J-102S	CR	1 K 1/4 W, J
R320	" -561S	"	560 "
R321	" -392S	"	3.9 K "
R322	" -332S	"	3.3 K "
R323	—	—	
R324	QVP2A0B-023	VR (V. CENTER)	2 K
⚠ R325	QRG029J-101	OMR	100 2 W, J
R401	QRD141J-103S	CR	10 K 1/4 W, J
R402	" -123S	"	12 K "
R403	" -560S	"	56 "
R404	" -683S	"	68 K "
R405	QRV142F-1182	CMF R	11.8 K 1/4 W, F
R406	QVF4A6B-053	VR (H. HOLD)	5 K
⚠ R407	QRG029J-221	OMR	220 2 W, J
R408	QRD141J-271S	CR	270 1/4 W, J
R409	" -222S	"	2.2 K "
R410	" -101S	"	100 "
⚠ R411	QRG029J-330	OMR	33 2 W, J
R412	—	—	
R413	QRD141J-153S	CR	15 K 1/4 W, J
R414	—	—	
R415	QRD141J-273S	CR	27 K 1/4 W, J
R416	" -102S	"	1 K "
R417	—	—	
R418	QRD141J-562S	CR	5.6 K 1/4 W, J
R419	—	—	
⚠ R420	C30336-A	VR (FOCUS)	
R421	—	—	
R422	—	—	
R423	QRD141J-472S	CR	4.7 K 1/4 W, J
R424	" -102S	"	1 K "
R425	" -560S	"	56 "
R508	QRD141J-681S	CR	680 1/4 W, J
R509	" -102S	"	1 K "

Symbol No.	Part No.	Part Name	Description
R510	QRD141J-222S	CR	22 K 1/4 W, J
R511	" -472S	"	4.7 K "
R512	" -220S	"	22 "
R513	" -331S	"	330 "
R1001	QRD141J-221S	CR	220 1/4 W, J
R1002	" -222S	"	2.2 K "
R1003	" -103S	"	10 K "
R1004	" -472S	"	4.7 K "
R1005	" -272S	"	2.7 K "
R1006	" -272S	"	2.7 K "
R1007	" -272S	"	2.7 K "
R1008	" -222S	"	2.2 K "
R1009	" -102S	"	1 K "
R1010	QVP5A6B-053	VR (G. CUT OFF)	5 K
⚠ R1011	QRG019J-123	OMR	12 K 1 W, J
R1012	QRC122K-562	Comp. R	5.6 K 1/2 W, K
R1013	QVP5A6B-022	VR (R. DRIVE)	200
R1014	QRD141J-102S	CR	1 K 1/4 W, J
R1015	QVP5A6B-053	VR (R. CUT OFF)	5 K
⚠ R1016	QRG019J-123	OMR	12 K 1 W, J
R1017	QRC122K-562	Comp. R	5.6 K 1/2 W, K
R1018	QRD141J-181S	CR	180 1/4 W, J
R1019	" -102S	"	1 K "
R1020	QVP5A6B-053	VR (B. CUT OFF)	5 K
⚠ R1021	QRG019J-123	OMR	12 K 1 W, J
R1022	QRC122K-562	Comp. R	5.6 K 1/2 W, K
R1023	—	—	
R1024	QRD141J-123S	CR	12 K 1/4 W, J
R1025	" -123S	"	12 K "
R1026	—	—	
R1027	—	—	
R1028	QRD141J-822S	CR	8.2 K 1/4 W, J
R1029	" -153S	"	15 K "
R1030	QVP2A0B-024	VR (SUB COLOR)	20 K
R1031	—	—	
R1032	QRD141J-181S	CR	180 1/4 W, J
R1033	" -181S	"	180 "
R1034	" -101S	"	100 "
R1035	" -221S	"	220 "
R1036	" -221S	"	220 "
R1037	QVP5A6B-022	VR (G. DRIVE)	200
R1038	QRD141J-222S	CR	2.2 K 1/4 W, J
R1039	" -103S	"	10 K "
C107	QCS31HJ-4R0	C Cap	4 P 50 V
C108	QEE51VM-474	T Cap	0.47 35 V
C109	QET61CR-335	E Cap	3.3 16 V
C110	QCS31HJ-271	C Cap	270 P 50 V
C111	QET61CR-227	E Cap	220 16 V
C112	QEN51HM-335	"	3.3 50 V
C113	QCS31HJ-221	C Cap	220 P "
C114	" -681	"	680 P "
C115	" -391	"	390 P "
C201	QET61HR-105	E Cap	1 50 V
C202	" -105	"	1 "
C203	QCS31HJ-221	C Cap	220 P "
C204	QET61CR-106	E Cap	10 16 V
C205	QCF31HP-103	C Cap	0.01 50 V
C206	QCF31HJ-270	"	27 P "
C207	QCY31HK-152	"	0.0015 "

Symbol No.	Part No.	Part Name	Description
C208	QET61CR-227	E Cap	220 16 V
C209	QEM71HK-104	MY Cap	0.1 50 V
C210	QET61CR-107	E Cap	100 16 V
C211	QCY31HK-102	C Cap	0.001 50 V
C212	QET61CR-477	E Cap	470 16 V
C301	QCY31HK-681	C Cap	680 P 50 V
C302	QEE51CK-225	T Cap	2.2 16 V
C303	QFM71HK-563	MY Cap	0.056 50 V
C304	" -104	"	0.1 "
C305	" -393	"	0.039 "
C306	QET61CR-227	E Cap	220 16 V
C307	QEE51CK-106	T Cap	10 "
C308	QET61CR-107	E Cap	100 "
C309	" -477	"	470 "
C310	QET61ER-477	"	470 25 V
C311	QFM71HK-224	MY Cap	0.22 50 V
C401	QFM71HK-102	MY Cap	0.001 50 V
C402	" -822	"	0.0082 "
C403	QET61HR-474	E Cap	0.47 "
C404	QFM71HK-223	MY Cap	0.022 "
C405	" -333	"	0.033 "
C406	QFP31HJ-562	PP Cap	0.0056 "
C407	QET61CR-107	E Cap	100 16 V
C408	QCY32HK-471	C Cap	470 P 500 V
C409	QFM71HK-183	MY Cap	0.018 50 V
C410	QCZ9001-102	C Cap	0.001 AC 150 V
C411	AX49316-153	PP Cap	0.015 400 V
C412	" -822	"	0.0082 "
C413	AX49290	BP Cap	10 25 V
C414	QFM71HK-473	MY Cap	0.047 50 V
C415	QEN51HA-105	E Cap	1 "
C416	QEW62CA-475	"	4.7 160 V
C417	QFH63BK-223	PP Cap	0.022 1.25 KV
C418	—	—	
C419	QET61HR-474	E Cap	0.47 50 V
C420	QET61AR-107	"	100 10 V
C421	AX49316-153	PP Cap	0.015 400 V
C422	QCS31HJ-221	C Cap	220 P 50 V
C423	—	—	
C424	QET61ER-107	E Cap	100 25 V
C425	QFM72AK-103	MY Cap	0.01 100 V
C503	QET61CR-108	E Cap	1000 16 V
C506	QET61HR-105	"	1 50 V
C1001	QET61HR-105	E Cap	1 50 V
C1002	" -105	"	1 "
C1003	" -105	"	1 "
C1004	" -106	"	10 "
C1005	QCS31HJ-680	C Cap	68 "
C1006	QET61CR-106	E Cap	10 16 V
C1007	QCS31HJ-680	C Cap	68 50 V
C1008	QET61CR-106	E Cap	10 16 V
C1009	—	—	
C1010	—	—	
C1011	QFM71HK-152	MY Cap	0.0015 50 V
C1012	" -152	"	0.0015 "
C1013	" -152	"	0.0015 "
DL101	A76140	Delay Line	

Symbol No.	Part No.	Part Name	Description
L101	A49468-101	Peaking Coil	
L102	" -562	"	
L401	A76611	Linearity Coil	
L402	A75759	Width Coil	
L403	—	—	
L404	C30443-A	Heater Choke	
L1001	A04725-220	Peaking Coil	
L1002	" -220	"	
T401	A75757	HOR. Drive Transf.	
⚠T402	C29120-A	HV Transf.	
	A32169-2	Shield Cover	
	SBSB3008Z	Screw	
	A46445	Focus Cover	
	QWD059-18A5A5	High Volt Wire	

7.2 PAL/SECAM PB P.W.B. ASS'Y

Symbol No.	Part No.	Part Name	Description
IC01	AN5620X	Integrated Circuit	for PAL
IC02	AN5630N	"	for SECAM
D01	1S2473H	Diode	
D02	"	"	
R01	ORD142J-332S	CR	3.3 K 1/4 W, J
R02	ORZ0054-100	FR	
R03	ORD142J-103S	CR	10 K 1/4 W, J
R04	" -223S	"	22 K "
R05	" -471S	"	470 "
R06	QVZ3230-023	VR	2 K
R07	ORD142J-681S	CR	680 1/4 W, J
R08	" -471S	"	470 "
R09	" -122S	"	1.2 K "
R10	" -682S	"	6.8 K "
R11	" -223S	"	22 K "
R12	" -102S	"	1 K "
R13	" -182S	"	1.8 K "
R14	" -331S	"	330 "
R15	" -331S	"	330 "
R16	" -332S	"	3.3 K "
R17	" -223S	"	22 K "
R18	" -183S	"	18 K "
R19	" -102S	"	1 K "
R20	" -101S	"	100 "
R21	" -222S	"	2.2 K "
C01	CCS31HJ-820	C Cap	82 P 50 V
C02	" -150	"	15 P "
C03	CCF31EZ-103	"	0.01 25 V
C04	CEE51CM-335	T Cap	3.3 16 V
C05	" -225	"	2.2 "
C06	CCF31EZ-103	C Cap	0.01 25 V
C07	CEE51CM-336	T Cap	33 16 V
C08	CCS31HJ-180	C Cap	18 P 50 V
C09	" -680	"	68 P "
C10	CAT3001-010	TR Cap	30 P
C11	CCS31HJ-100	C Cap	10 P 50 V
C12	CFM71HK-123	MY Cap	0.012 "
C13	CEN51HM-105	E Cap	1 "
C14	CFM71HK-123	MY Cap	0.012 "
C15	CCS31HJ-181	C Cap	180 P "
C16	CCF31EZ-103	"	0.01 25 V
C17	" -103	"	0.01 "
C18	CEW51EA-475	E Cap	4.7 "
C19	" -475	"	4.7 "
C20	CCF31EZ-103	C Cap	0.01 "
C21	" -103	"	0.01 "
C22	" -103	"	0.01 "
C23	CCS31HJ-220	"	22 P 50 V
C24	CCT25CH-180	"	18 P
C25	CCF31EZ-102	"	0.001 25 V
C26	CCS31HZ-151	"	150 P 50 V
C27	" -101	"	100 P "
C28	" -121	"	120 P "
C29	CCT25CH-180	"	18 P
C30	CCF31EZ-102	"	0.001 25 V
C31	CCS31HJ-221	"	220 P 50 V
C32	" -101	"	0.001 "
C33	CCF31EZ-103	"	0.01 25 V

Symbol No.	Part No.	Part Name	Description
C34	CCS31HJ-121	C Cap	120 P 50 V
C35	CEW51EA-475	E Cap	4.7 25 V
C36	CFM71HK-223	MY Cap	0.022 50 V
C37	CCT25CH-390	C Cap	39 P
C38	CCS31HJ-101	"	100 P 50 V
C39	" -181	"	180 P "
C40	CEN51EM-335	E Cap	3.3 25 V
L02	A04725-5R6	"	
DL01	A75103-B	1H Delay Line	
T01	A60287-A	BP Transf.	
T02	A75087	DL P Transf.	
T03	A76140	Bell Transf.	
T04	A76146	Ident. Transf.	
T05	A75142	Discri. Transf.	
T06	A75142	"	
Y01	A76090	Crystal	

7.3 POWER P.W.B. ASS'Y

Symbol No.	Part No.	Part Name	Description
⚠ X502	2SC1213A(C)	Transistor	
⚠ D501	S4VB20(V)	Si. Diode Stack	
⚠ D502	RD5.6EB1	Zener Diode	
⚠ D505	1S2473H	Diode	
⚠ D506	1S2076A	"	
R502	QRD142J-151S	CR	150 1/4 W, J
R503	QRG016J-391	OMR	390 1 W, J
R504	QRD142J-330S	CR	33 1/4 W, J
⚠ R505	QRV142F-2151	CMF Resistor	2.15 K
⚠ R506	QVP2A08-052	VR	500
⚠ R507	QRV142F-2201	CMF Resistor	2.2 K
⚠ R514	QRD142J-103	CR	10 K 1/4 W, J
R515	" -102	"	1 K "
R516	QRC122K-151	Comp. R	150 1/2 W, K
C501	QEV71ER-688	E Cap	6800 25 V
C502	QET61CR-476	"	47 16 V
C503	— —		
C504	QCF31HP-103	C Cap	0.01 50 V
C505	QET61CR-477	E Cap	470 16 V
C506	— —		
C507	QET61ER-476	E Cap	47 25 V
C508	— —		
C509	QFM72AK-473	MY Cap	0.047 100 V
CR501	A03008-006	CR Block	
CR502	A03008-006	"	
⚠ F 2	QMF51A2-2R0	Fuse	T2A 250 V
	A44994-001	Contact Clip	for Fuse 2
J11	A04406-00A	Connector Ass'y	4-P
P13	QMC0328-002	Connector Base	3-P
	A60152-00A	Heat Sink	for D501
	SBSB3012Z	Tap Screw	

7.4 VIDEO/AUDIO BOARD-1

Symbol No.	Part No.	Part Name	Description
X101	2SC460C	Transistor	
X102	2SA664Q,R	"	
X103	2SC460C	"	
X104	2SC1213C	"	
R101	QRD141J-473S	CR	47 K 1/4 W, J
R102	" -273S	"	27 K "
R103	" -272S	"	2.7 K "
R104	" -681S	"	680 "
R105	" -121S	"	120 "
R106	" -561S	"	560 "
R107	" -473S	"	47 K "
R108	" -124S	"	120 K "
R109	" -682S	"	6.8 K "
R110	— —		
R111	QRC122K-181	Comp. R	180 1/2 W, K
R112	QRD141J-680S	CR	68 1/4 W, J
R113	— —		
R114	QRD141J-750S	CR	75 1/4 W, J
C101	QFT61CR-106	E Cap	10 16 V
C102	" -106	"	10 "
C103	" -106	"	10 "
C104	" -477	"	470 "
C105	— —		
C106	QFT61CR-227	E Cap	227 16 V
S102	QSS2201-501	Slide Switch	
S103	QSS4201-072	"	

7.5 VIDEO/AUDIO BOARD-2

Symbol No.	Part No.	Part Name	Description
R113	QRD141J-750S	CR	75 1/4 W, J
S101	QSS2201-202	Slide Switch	

7.6 POWER SWITCH P.W.B. ASS'Y

Symbol No.	Part No.	Part Name	Description
R201	QVB9D7A-054	VR (SW/VOL)	50 K
R202	QRD141J-333S	CR	33 K 1/4 W, J

7.7 VOLUME P.W.B. ASS'Y

Symbol No.	Part No.	Part Name	Description
R126	QVG6A7B-124	VR(BRIGHT)	20 K
R127	— —		
R128	QVG6A7B-124	VR(CONTR)	20 K
R1023	QVG6A7B-114	VR(TINT)	10 K
R1027	QVG6A7B-124	VR(COLOR)	20 K

7.8 CRT SOCKET P.W.B. ASS'Y

Symbol No.	Part No.	Part Name	Description
R419	QVZ3218-028G	VR (SCREEN VOLT)	2 M
R421	ORC122K-474	Comp. R	470 K 1/2 W, K
R422	" -684	"	680 K "
C418	QCZ9001-102	C Cap	0.001 AC 150 V
AR301	A76403	Air Gap	
AR302	"	"	
AR303	"	"	
AR401	"	"	
⚠	A76121	CRT Socket	

7.9 COLOR SYSTEM P.W.B. ASS'Y

Symbol No.	Part No.	Part Name	Description
S1001	AX49558	Slide Switch	

7.10 L.E.D. P.W.B. ASS'Y

Symbol No.	Part No.	Part Name	Description
D503	GL-53RG	LED	

7.11 JACK P.W.B. ASS'Y

Symbol No.	Part No.	Part Name	Description
J16	QMS3501-014	Jack	(Earphone)